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EXAMINER

STACE, BRENT S

ART UNIT PAPER NUMBER

2161

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/726,041

Applicant(s)

SAITO ET AL.

Examiner

Brent S. Stace

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 56-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 56-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 May 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

1. This communication is responsive to the amendment filed May 10th, 2007. Claims 1-15 and 56-69 are pending. In the amendment filed May 10th, 2007, Claims 1-3, 7, 9-13, 56-58, and 60-69 are amended, Claims 16-55 are canceled, and Claims 1 and 56 are independent Claims. The examiner acknowledges that no new matter was introduced and the claims are supported by the specification. This action is made FINAL.

Response to Arguments

2. Applicant's arguments filed May 10th, 2007 with respect to Claims 1-15 and 56-69 have been fully considered but they are not persuasive.
3. With respect to the applicant's argument with respect to Claims 1 and 56 for the prior art(s) allegedly not teaching "a graph structure...in which each replica of a file directory has edges to only a subset of other replicas such that all the replicas of the file directory are connected via the graph," the examiner respectfully submits that this argument is moot in view of the new ground(s) of rejection below.
4. With respect to the applicant's argument with respect to Claims 10 and 65 for the prior art(s) allegedly not teaching "core and non-core replicas" or "a parent directory having edges only to such core replicas," the examiner respectfully submits that this argument is moot in view of the new ground(s) of rejection below.

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5. With respect to the applicant's argument with respect to Claims 11 and 66 for the prior art(s) allegedly not teaching "in response to a user accessing an object at a node when no replica of the object exists at the node, the method further comprises steps of forming a non-core replica of the parent directory for the object at the node and forming non-core replica of the object at the node," the examiner respectfully submits that this argument is moot in view of the new ground(s) of rejection below.

6. The other claims argued merely because of a dependency on a previously argued claim(s) in the arguments presented to the examiner, filed May 10th, 2007, are moot in view of the examiner's interpretation of the claims and art and are still considered rejected based on their respective rejections from a prior Office action (part(s) of recited again below).

Response to Amendment

Specification

7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

8. The drawings are still objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the

description: 405 of Fig. 15. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

9. In light of the applicant's respective arguments or respective amendments, the previous 35 USC § 112 rejections to the claims have been withdrawn. However, new rejections are warranted by the amended claims.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 11 and 56-69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Claim 11 recites "...in response to a user accessing an object at a node when no replica of the object exists at the node" on lines 2-3. An object cannot be accessed

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when it doesn't exist. Maybe the applicant intended to claim "...in response to a user attempting to access an object at a node when no replica of the object exists at the node." Claim 66 recites similar language and is also rejected similar to how Claim 11 is rejected herein.

13. Claim 56 recites the limitation "the graph" in lines 9 and 10. There is insufficient antecedent basis for this limitation in the claim. This rejection propagates downward through dependent Claims 57-69.

Claim Rejections - 35 USC § 102

14. In light of the applicant's respective arguments or respective amendments, the previous 35 USC § 102 rejections to the claims have been withdrawn.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

17. Claims 1, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Replication in Ficus Distributed File Systems" (Popek et al.) in view of U.S. Patent Application Publication No. 2001/0044879 (Moulton, et al.).

For **Claim 1**, Popek teaches: "A method for a wide-area file system, including a plurality of nodes storing replicas of objects, the objects being files and directories, wherein for each replica of an object at a node, a parent directory for the object is replicated at the node, [Popek, page 22, 1st paragraph under "5 The Ficus Project"] the method comprising:

- propagating an update to a replica of the a file directory to other replicas of the file directory [Popek, page 21, 1st and 3rd paragraphs under "3 The Optimistic Model"]...and
- in response to receiving a propagated update to a replica of the file directory at a node, updating the replica for the file directory at the node" [Popek, page 21, 1st and 3rd paragraphs under "3 The Optimistic Model"].

Popek discloses the above limitations but does not expressly teach:

- "...via a graph, wherein each replica of the file directory has edges to only a subset of the other replicas such that all the replicas of the file directory are connected via the graph."

With respect to Claim 1, an analogous art, Moulton, teaches:

- "...via a graph, wherein each replica of the file directory has edges to only a subset of the other replicas such that all the replicas of the file directory are connected via the graph" [Moulton, Fig. 1].

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Moulton and Popek before him/her to combine Moulton with Popek because both inventions are directed towards replicating files across computers.

Moulton's invention would have been expected to successfully work well with Popek's invention because both inventions use computers on a network replicating files. Popek discloses Replication in Ficus Distributed File Systems (title) comprising updating and propagating replicas. However, Popek does not explicitly disclose a graph for propagating updates. Moulton discloses a system and method for distributed management of data storage (title) comprising a graph and way in which replicas are dispersed.

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Moulton and Popek before him/her to take the graph from Moulton and install it into the invention of Popek, thereby offering the obvious advantage of having an efficient means of determining how the replicas replicate (Moulton, paragraphs [0032] and [0036]).

Claim 10 can be mapped to Popek (as modified by Moulton) as follows: "The method according to claim 1, wherein the replicas of the file directory include core

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replicas and non-core replicas, the parent directory for the file directory having edges only to the core replicas of the file directory and each core replica of the file directory having edges to the one or more of the non-core replicas of the file directory" [Moulton, paragraphs [0028] and [0078]].

Claim 11 can be mapped to Popek (as modified by Moulton) as follows: "The method according to claim 10, wherein in response to a user accessing an object at a node when no replica of the object exists at the node, the method further comprises steps of forming a non-core replica of the parent directory for the object at the node and forming a non-core replica of the object at the node" [Moulton, paragraphs [0078]].

18. Claims 2-9 and 56-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Replication in Ficus Distributed File Systems" (Popek et al.) in view of U.S. Patent Application Publication No. 2001/0044879 (Moulton, et al.), further in view of "Designing a Robust Namespace for Distributed File Services" (Zhang et al.) (found in Applicant's IDS).

For **Claim 2**, Popek (as modified by Moulton) teaches: "The method according to claim 1, wherein."

Popek (as modified by Moulton) discloses the above limitation but does not expressly teach: "each replica of an object has a backpointer including an identification of a parent directory for the object and a name of the object in the parent directory.

With respect to Claim 2, an analogous art, Zhang, teaches: "each replica of an object has a backpointer including an identification of a parent directory for the object

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and a name of the object in the parent directory" [Zhang, page 2, 2nd paragraph above "2 Problem Abstraction" with Zhang, page 3, paragraph under "Back pointer"].

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Zhang and Popek (as modified by Moulton) before him/her to combine Zhang with Popek (as modified by Moulton) because both inventions are directed towards distributed file replication.

Zhang's invention would have been expected to successfully work well with Popek (as modified by Moulton)'s invention because both inventions use file replication. Popek (as modified by Moulton) discloses Replication in Ficus Distributed File Systems comprising updating and propagating replicas. However, Popek (as modified by Moulton) does not expressly disclose backpointers. Zhang discloses Designing a Robust Namespace for Distributed File Services comprising backpointers.

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Zhang and Popek (as modified by Moulton) before him/her to take the backpointers from Zhang and install it into the invention of Popek (as modified by Moulton), thereby offering the obvious advantage of minimizing overhead in guaranteeing namespace consistency and breaking down file service operations into simple namespace primitives for easy namespace consistency and/or operation recovery.

Claim 3 can be mapped to Popek (as modified by Moulton and Zhang) as follows: "The method according to claim 2, wherein the parent directories are modified when the backpointer for a replica of an object at a node is not consistent with the

parent directories for the replica of the object at the node" [Zhang, pages 2-3, "2 Problem Abstraction"].

Claim 4 can be mapped to Popek (as modified by Moulton and Zhang) as follows: "The method according to claim 3, wherein modifying the parent directories occurs only after a delay" [Zhang, pages 2-3, "2 Problem Abstraction"].

Claim 5 can be mapped to Popek (as modified by Moulton and Zhang) as follows: "The method according to claim 3, wherein multiple modifications to the parent directories at the node are performed according to an order in which corresponding updates occur" [Zhang, page 2, 2nd paragraph above "2 Problem Abstraction" with Zhang, page 3 bullet 2 under "3 System Model and Failure Assumptions" with Zhang, page 4 paragraph under "4.2 Failure-free protocols" with Zhang, page 7 col. 1 with Zhang, page 7, Fig. 8].

Claim 6 can be mapped to Popek (as modified by Moulton and Zhang) as follows: "The method according to claim 3, wherein a modification is performed at the node and an earlier inconsistent modification is ignored" [Popek, page 21, middle paragraph in col. 2 or Zhang, page 3, paragraph above "3 System Model and Failure Assumptions"].

Claim 7 can be mapped to Popek (as modified by Moulton and Zhang) as follows: "The method according to claim 2, wherein a directory operation affects the backpointer for the object" [Zhang, page 4, paragraph under "Link"].

Claim 8 can be mapped to Popek (as modified by Moulton and Zhang) as follows: "The method according to claim 7, wherein the directory operation is selected

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from a group consisting of rename, link and unlink" [Zhang, page 2, section 2 "Problem Abstraction" with Zhang, page 4, Fig. 3 with Zhang, page 5, Fig. 4].

Claim 9 can be mapped to Popek (as modified by Moulton and Zhang) as follows: "The method according to claim 8, wherein when the backpointer for a replica of an object at a node is not consistent with the parent directories for the replica of the object at the node, further comprising modifying the parent directories to be consistent with the backpointer [Zhang, pages 2-3, "2. Problem Abstraction" with Zhang, pages 2-3, paragraphs under Table 2 to "3 System Model and Failure Assumptions"].

For **Claim 56**, Popek teaches: "A system including:

- a plurality of nodes that store replicas of objects, the objects being files and file directories, [Popek, page 22, 1st paragraph under "5 The Ficus Project"]
- wherein for each replica of an object at a node, the node stores a replica of a parent directory for the object [Popek, page 22, 1st paragraph under "5 The Ficus Project"] ... and
- ... and the nodes are configured to propagate updates to replicas of each file directory to other replicas of the file directory..." [Popek, page 21, 1st and 3rd paragraphs under "3 The Optimistic Model"].

Popek discloses the above limitations but does not expressly teach:

- "...and a backpointer having an identification of the parent directory for the object
- ...wherein each replica of a file directory has edges to only a subset of the other replicas of the file directory such that all the replicas of the file directory are connected via the graph

- ...via the graph.”

With respect to Claim 56, an analogous art, Zhang, teaches:

- “...and a backpointer having an identification of the parent directory for the object” [Zhang, page 2, 2nd paragraph above “2 Problem Abstraction” with Zhang, page 3, paragraph under “Back pointer”].

With respect to Claim 56, an analogous art, Moulton, teaches:

- ...wherein each replica of a file directory has edges to only a subset of the other replicas of the file directory such that all the replicas of the file directory are connected via the graph [Moulton, Fig. 1]
- ...via the graph” [Moulton, Fig. 1].

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Zhang, Moulton and Popek before him/her to combine Zhang and Moulton with Popek because the inventions are directed towards distributed file replication.

Zhang’s and Moulton’s inventions would have been expected to successfully work well with Popek’s invention because the inventions use file replication. Popek discloses Replication in Ficus Distributed File Systems comprising updating and propagating replicas. However, Popek does not expressly disclose backpointers or explicitly disclose a graph for propagating updates. Zhang discloses Designing a Robust Namespace for Distributed File Services comprising backpointers. Moulton discloses a system and method for distributed management of data storage (title) comprising a graph and way in which replicas are dispersed.

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Zhang and Popek before him/her to take the backpointers from Zhang and to take the graph from Moulton and install them into the invention of Popek, thereby offering the obvious advantage of minimizing overhead in guaranteeing namespace consistency and breaking down file service operations into simple namespace primitives for easy namespace consistency and/or operation recovery. Using Moulton's graph offers the obvious advantage of having an efficient means of determining how the replicas replicate (Moulton, paragraphs [0032] and [0036]).

Claim 57 can be mapped to Popek (as modified by Moulton and Zhang) as follows: "The system according to claim 56, wherein in response to receiving a propagated update to a replica at a node, the node updates the parent directories for the file at the node" [Popek, page 21, paragraphs 3 and 4 under "3 The Optimistic Model" with Popek, page 22 paragraphs 1-3 under "5 The Ficus Project"].

Claims 58-66's limitation(s) have already been met by Claims 3-11's limitation(s), respectfully. Therefore, Claims 58-65 are rejected for the same reason(s) as stated above with respect to Claims 3-11, respectfully.

19. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over "Replication in Ficus Distributed File Systems" (Popek et al.) in view of U.S. Patent Application Publication No. 2001/0044879 (Moulton, et al.), further in view of "The Costs and Limits of Availability for Replicated Services" (Yu et al.) (found in Applicant's IDS).

For **Claim 12**, Popek teaches: "The method according to claim 10, wherein."

Popek discloses the above limitation but does not expressly teach: "...a minimum number of core replicas are maintained according to a minimum replication factor."

With respect to Claim 12, an analogous art, Yu, teaches: "...a minimum number of core replicas are maintained according to a minimum replication factor" [Yu, page 1, last paragraph, with Yu, page 12, Figs. 11 and 12 with Yu, page 12, last paragraph in "5.3 Effects of Replication Scale" with Popek, page 21, 3rd paragraph under "3 The Optimistic Model"].

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Yu and Popek before him/her to combine Yu with Popek because both inventions are directed towards replicating files to achieve higher availability.

Yu's invention would have been expected to successfully work well with Popek's invention because both inventions use file replication. Popek discloses Replication in Ficus Distributed File Systems comprising updating and propagating replicas. However, Popek does not expressly disclose a minimum replication factor. Yu discloses the costs and limits of availability for replicated services comprising determining a degree of replication.

It would have been obvious to one of ordinary skill in the art at the time of invention having the teachings of Yu and Popek before him/her to take the degree of replication from Yu and install it into the invention of Popek, thereby offering the obvious

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advantage of system developers being able to determine a degree of replication to achieve a target service availability.

20. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Replication in Ficus Distributed File Systems" (Popek et al.) in view of U.S. Patent Application Publication No. 2001/0044879 (Moulton, et al.), further in view of U.S. Patent Application Publication No. 2002/0107835 (Coram et al.).

For **Claim 13**, Popek teaches: "The method according to claim 1."

Popek discloses the above limitation but does not expressly teach: "wherein a replica of an object is deleted by marking the replica as invalid."

With respect to Claim 13, an analogous art, Coram, teaches: "wherein a replica of an object is deleted by marking the replica as invalid" [Coram, paragraph [0047]].

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Coram with Popek because both inventions are directed towards deleting data.

Coram's invention would have been expected to successfully work well with Popek's invention because both inventions use computers modifying computer storage. Popek discloses Replication in Ficus Distributed File Systems comprising updating and deleting replicas, however Popek does not expressly disclose marking objects/replicas as invalid. Coram discloses a system and method for adaptive result set caching comprising marking objects/replicas as invalid.

It would have been obvious to one of ordinary skill in the art at the time of invention to take the marking objects/replicas as invalid from Coram and install it into the invention of Popek thereby offering the obvious advantage of having the objects/replicas still available after "deletion" (marking invalid) so that the objects/replicas may be recovered by a user if necessary.

Claim 15 can be mapped to Popek (as modified by Coram) as follows: "The method according to claim 13, further comprising periodically removing replicas marked as invalid" [Coram, paragraph [0050] with Coram, paragraph [0047]].

21. Claims 14 and 67-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Replication in Ficus Distributed File Systems" (Popek et al.) in view of U.S. Patent Application Publication No. 2001/0044879 (Moulton, et al.), further in view of U.S. Patent Application Publication No. 2002/0107835 (Coram et al.), further in view of "Designing a Robust Namespace for Distributed File Services" (Zhang et al.) (found in Applicant's IDS).

For **Claim 14**, Popek (as modified by Coram) teaches: "The method according to claim 13."

Popek (as modified by Coram) discloses the above limitation but does not expressly teach: "wherein said marking the replica as invalid comprises removing the backpointer for the replica."

With respect to Claim 14, an analogous art, Zhang, teaches: "wherein said marking the replica as invalid comprises removing the backpointer for the replica" [Zhang, page 3, section 2 "Problem Abstraction"].

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Zhang with Popek (as modified by Coram) because both inventions are directed towards distributed storage services with namespaces.

Zhang's invention would have been expected to successfully work well with Popek (as modified by Coram)'s invention because both inventions use files and directories with namespaces for distributed storage. Popek (as modified by Coram) discloses Replication in Ficus Distributed File Systems comprising updating and deleting replicas, however Popek (as modified by Coram) does not expressly disclose marking the replica as invalid comprises removing the backpointer for the replica. Zhang discloses the designing of a robust namespace for distributed file services comprising removing the backpointer for the replica.

It would have been obvious to one of ordinary skill in the art at the time of invention to take the removing the backpointer for the replica from Zhang and install it into the invention of Popek (as modified by Coram), thereby offering the obvious advantage of an efficient way of creating an orphaned object, thereby violating Zhang's namespace rules and requiring special considerations for maintaining namespace integrity.

Claims 67-69's limitation(s) have already been met by Claims 13-15's limitation(s), respectfully. Therefore, Claims 67-69 are rejected for the same reason(s) as stated above with respect to Claims 13-15, respectfully.

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Conclusion


23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is advised that, although not used in the rejections above, any prior art cited on the PTO-892 form and not relied upon is considered materially relevant to the applicant's claimed invention and/or portions of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent S. Stace whose telephone number is 571-272-8372 and fax number is 571-273-8372. The examiner can normally be reached on M-F 9am-5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu M. Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brent Stace 


APU MOFIZ
SUPERVISORY PATENT EXAMINER

